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ARMSTRONG, KRATZ, QUINTOS, HANSON & BROOKS, LLP
1725 K STREET, NW
SUITE 1000
WASHINGTON, DC 20006

EXAMINER

BRUENJES, CHRISTOPHER P

ART UNIT	PAPER NUMBER
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1772

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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Application Number: 10/757,453
Filing Date: January 15, 2004
Appellant(s): SUZUKI ET AL.

MAILED

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GROUP 1700

Daniel A. Geselowitz, Ph.D.
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed October 6, 2006
appealing from the Office action mailed March 13, 2006.

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(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

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The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

US 6,089,278 NISHINO et al 7-2000

US 2002/0104575 NISHI et al 8-2002

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

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4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishino et al. (USPN 6,089,278) in view of Nishi et al. (US 2002/0104575 A1).

Nishino et al. teach an automotive fuel hose (col.1, 1.8-10) comprising an inner layer (reference number 10, Figure 1) comprising a fluororesin, a low fuel permeability layer (reference number 12, Figure 1) provided about an outer peripheral surface of the inner layer comprising a polyester resin having a naphthalene ring such as polybutylene naphthalate, and an adhesive layer (reference number 11, Figure 1) for bonding the inner layer and the low fuel permeability layer (see abstract). The adhesive layer is a blend of fluororesin, polyester, polyamide and compatibilizer such as a miscibilizer including an epoxy compound, acid anhydride, oxazoline group, isocyanate group, carboxylic acid group, or amino group (col.9, 1.27-48).

Nishino et al. fail to teach that the fluororesin forming the inner layer has a functional group. However, Nishi et al. teach that fluororesin has a low adhesive property and has inadequate bond strength to most other materials including polyamide and polyesters (p.1, paragraph 6). Nishi et al. teach

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that in order to provide fluororesins with enhanced melt adhesiveness an adhesive functional group is incorporated into the fluororesin (p.2, paragraphs 23, 26, and 27). Nishi et al. teach that the adhesiveness-imparting functional group is selected from the group consisting of an epoxy group, a hydroxyl group, a carboxylic anhydride residual group, and a carboxylic acid group (p.2, paragraphs 28 and 31). One of ordinary skill in the art would have recognized that an adhesive functional group is added to a fluororesin in order to improve the adhesiveness of the fluororesin to other non-fluororesin materials such as polyamides and polyester since fluororesins not containing the adhesive functional groups lack adequate bond strength to materials like polyamide and polyester, as taught by Nishi et al.

Therefore, it would have been obvious to one having ordinary skill in the art at the time Appellant's invention was made to add a functional group selected from the group consisting of epoxy group, hydroxyl group, carboxylic anhydride residual group, and carboxylic acid group, in order to provide the fluororesin with increased adhesiveness to materials like polyester and polyamide, since adding a functional group to the fluororesin increases the adhesive bond between the fluororesin and the polyester and polyamide of the adhesive layer, as taught

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by Nishi et al, thus improving the adhesiveness between the fluororesin and the adhesive layer of Nishino et al.

(10) Response to Argument

Appellant argues that the motivation for modification of references is improper. Appellant further argues that there is no suggestion or motivation to combine the references. Appellant further argues that Nishi et al. teaches away from a combination with Nishino et al.

In response to Appellant's argument that the motivation for modification of references is improper, first, the Appellant has correctly stated the Examiner's proposed modification of Nishino et al. with Nishi et al. of being a hose with an innermost layer comprising fluororesin having a functional group, an adhesive layer, which is a blend of fluororesin, polyester, polyamide, and compatibilizer, and a middle layer, comprising a polyester having a naphthalene ring.

With regard to Appellant's point that Nishino et al. does not disclose or suggest that there is any lack of adhesiveness between the innermost and adhesive layers, the Examiner has not made the inference that there is "inadequate adhesiveness" between the innermost layer and adhesive layer of Nishino et al. The Examiner is extracting from Nishi et al. the teaching that fluororesin does not have adequate adhesiveness to

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nonfluorinated resins such as polyamide and polyester. As taught in Nishino et al there would be adhesiveness between the innermost layer and adhesive layer, because the adhesive layer of Nishino contains fluororesin. However, that adhesiveness could be improved by improving the adhesiveness between the fluororesin of the innermost layer and the polyamide and polyester components of the adhesive layer. Thus, improving the overall bond between the innermost and adhesive layers.

With regard to Appellant's point that there is no basis for the Examiner's assertion that adding a functional group to the innermost layer of Nishino et al. would increase the adhesiveness. Nishi et al. is used as a teaching to show that bonding is improved between fluororesins and materials such as polyester and polyamide when a functional group is added. Therefore, by adding a functional group to the innermost layer of Nishino et al. there would be enhanced adhesion between the innermost layer and the polyamide and polyester components of the adhesive layer, thus leading to increased adhesion between the innermost and adhesive layers.

In response to Appellant's argument that there is no suggestion or motivation to combine the references, Nishi et al. provides the suggestion or motivation for the combination. Nishi et al. teach that adhesion between fluororesins and non-

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fluororesins such as polyester and polyamide is improved when a functional group is added to the fluororesin. Because the adhesive layer of Nishino et al. includes a polyester and polyamide, it would have been obvious to one having ordinary skill in the art that the bond between the innermost layer and the adhesive layer would be strengthened if the innermost layer was adhesive to not only the fluororesin component of the adhesive layer but also the polyester and polyamide components by adding the functional group to the fluororesin of the innermost layer. Thus, the motivation to increase the adhesiveness of the layers of Nishino et al, suggest the combination of Nishino et al. and Nishi et al.

In response to Appellant's argument that Nishi et al. teaches away from a combination with Nishino et al. Nishi et al. teach that by adding a functional group to the fluororesin there can be adequate adhesion between the fluororesin layer and a non-fluorinated layer without an intermediate adhesive layer. However, Nishi et al. does not teach that the invention would not function with an intermediate adhesive layer, only that the adhesive layer is not necessary.

(11) Related Proceeding(s) Appendix

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No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

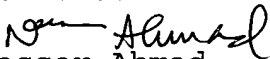
For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Christopher P. Bruenjes
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CPB
January 4, 2007

Conferees:


Nasser Ahmad


JENNIFER MICHENER
QUALITY ASSURANCE SPECIALIST

Jennifer Michener

Daniel A. Geselowitz, Ph.D.
ARMSTRONG, KRATZ, QUINTOS, HANSON & BROOKS, LLP
1725 K STREET, NW
SUITE 1000
WASHINGTON, DC 20006